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THE NATURAL HISTORY OF PRINCE ALBERT LAND.*

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I am indebted to the courtesy of Sir Alexander Armstrong, the Medical Director of the Navy—formerly Surgeon and Naturalist on board the 'Investigator' during her ever memorable voyage under M'Clure to the Arctic Regions—for permission to gather, from the archives of the department under his control, the data on which the information now offered is based; unfortunately the records at my disposal are of a somewhat meagre description, consisting of a list of mammals and birds found by Mr. Anderson in Prince Albert Land between the years 1851—53: this list, however, is supplemented by a very careful inventory of the specimens collected, and brought back to England. I have been unable to trace the disposal of Mr. Anderson's entire collection, which he states was sent to the Secretary of the Admiralty, but there is no doubt in my mind that some of the specimens are included in the Barrow Collection, now in the University Museum at Oxford, and in all probability the specimens of *Colymbus Adamsi*, and *Larus Sabinii*, included in that collection are identical with those recorded in Mr. Anderson's list.†

The study of Natural History in the Arctic Regions is surrounded by so many difficulties that it becomes a pleasing duty to place on record the services of those men, of a former generation, who, impelled only by a love for science, devoted themselves to its pursuit, under no ordinary circumstances.

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* A Contribution to the Natural History of Prince Albert Land. Derived from the Medical Returns of the late Surgeon Robert Anderson, of H.M.S. 'Enterprise.'

† See Harting, Catalogue of the Barrow Collection, Proc. Zool. Soc., 1871, p. 110.

Mr. R. Anderson entered the naval service in June, 1838, having received his diploma for surgery from the College of Surgeons of Edinburgh. He served from 1839 to 1842 on the Mediterranean station, and from 1843 to 1847 on the East Indian station. He was promoted surgeon, November, 1846, and served in the 'Investigator,' Captain Bird, during the Arctic Expedition of 1848—49 under Sir James Ross, and in the 'Enterprise,' Captain Collinson, from December, 1849, to May, 1855, during which commission he passed three successive winters in the Arctic Regions. He died at Edinburgh on June 24th, 1856.* The sole object of the voyage of H.M.S. 'Enterprise,' was to search for traces of the lost Franklin Expedition. How nobly that duty was performed is known to comparatively few, and only to those who have read the official journals of the Expedition, for the history of that voyage has yet to be written for the public.

The 'Enterprise,' under the command of Captain, now Admiral Sir Richard Collinson, having sailed through Behring Straits, rounded Point Barrow, the most northern promontory of Alaska, and pushing through the pack-ice gained the land-water on July 31st, 1851. Forcing his way to the eastward, by keeping close to the shores of the American continent, Collinson passed Cape Bathurst, August 25th, on which date the south shore of Banks Land was seen to the northward. The 'Enterprise,' now headed in that direction, and on August 27th, Prince of Wales Strait, the channel lying between Banks and Prince Albert Land, was entered, and by midnight of August 29th their farthest point in that direction was reached, viz., lat. 73° 30′ N., and long. 114° 35′ W., a frozen sea of a little less than sixty miles in extent separating them from the most western position gained by Parry, sailing from the eastward in 1819, and the accomplishment of the North-west Passage.

Returning southwards, a convenient harbour was found on the western shore of Prince Albert Land, in lat. 71° 35′ N., and long. 117° 35′ W.: this place was given the name of Winter Cove, and there the 'Enterprise' remained, shut in by the ice, till the following year. On August 5th, 1852, the 'Enterprise' left Winter Cove and proceeded eastward along the south shore of

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* For Obituary notice see Journ. R. G. S. xxvii, p. cxiii.

Prince Albert Land, and through the Dolphin and Union Strait, reaching Cambridge Bay on August 27th; there the ship took the ground, and remained until the ice set sufficiently firm to allow of the removal of everything out of the vessel to the shore; the ship floated on October 15th. The winter of 1852—53 was passed at Cambridge Bay on the south shore of Victoria Land, a position some two hundred and fifty miles farther east than that of Winter Cove.

In the spring of 1853 the sledge-parties from the 'Enterprise' searched the eastern shores of Victoria Land, for traces of the lost Franklin Expedition, singularly enough passing up the very channel in which the ill-fated 'Erebus' and 'Terror' were abandoned in 1848, and examining the opposite shore to that where in 1859, M'Clintock found the relics of the missing Expedition on King William Land. The sledge-parties returned to the ship on May 21st. On August 10th, 1853, the 'Enterprise' left Cambridge Bay, and sailing to the westward, after a perilous voyage, was detained for the winter of 1853—54, at Camden Bay, on the northern shore of the American continent, in lat. 70° 8′ N., long. 145° 29′ W. The 'Enterprise' was not able to leave Camden Bay until July 20th, 1854. Point Barrow was passed on the return voyage, August 8th; on September 16th the 'Enterprise' sailed from Port Clarence, Behring Straits, for Hong Kong.

The large island, to which the names of Prince Albert, Wollaston, and Victoria Land, have been given by successive explorers, occupies the very centre of the Parry Archipelago; it lies between the parallels of 68° 30′ and 73° 20′ N., and longitudes 100° and 120° W.; it is separated from the American continent by a comparatively narrow and shallow channel, varying in depth from a hundred to thirteen fathoms. If the rate of elevation continues, in these northern lands, as we are led to believe it does by the observation of recent explorers, it will only be a short time, in geological history, before Prince Albert Land and the continent of America are joined together. Roughly speaking, Prince Albert Land extends over an area of some four hundred miles east and west, and some three hundred miles north and south; the interior of this large island has not been explored.

We are well acquainted with the zoology of Melville Island lying directly north of Prince Albert Land, through the labours of Sabine; Armstrong has given us a good insight into that of Banks and Baring Land, lying to the westward; Franklin, Richardson, and Rae have made us conversant with the faunas of the northern shores of the American continent; whilst James Ross, M'Clintock, and Walker have done the same for the land lying directly east of the area under consideration; consequently the observations of Mr. Anderson must possess especial interest for students of Arctic Zoology, as they connect the work already recorded from the north, east, and west of the Parry Archipelago.

MAMMALIA.

Mr. Anderson's notice of the mammalia is confined to a list of quadrupeds ascertained by him to inhabit Prince Albert Land. This is supplemented, however, by a few references in his catalogue of specimens sent to the Admiralty. I have not in any instance altered the nomenclature as given by him, and it may be remarked that he has used the synonyms of the 'Fauna Boreali-Americana,' of Richardson and Swainson, 1829. The species are as follows:—*Lupus griseus*, *Canis lagopus*, *Mustela erminea*, *Ursus maritimus*, *Cervus tarandus*, and *Ovibos moschatus*.

Arvicola hudsonius.—A male specimen, entered in the catalogue of Mr. Anderson, was captured at Cambridge Bay, February 14th, 1853, another on March 8th, and three others during August of the same year.

Arvicola trimucronatus.—Three specimens of this Vole, all males, were captured at Cambridge Bay during the month of August, 1853, This species was observed by Sir James Ross in considerable numbers on the coast of Boothia Felix; but I am not aware that its presence has been detected on the islands to the north of the American continent by any other observer but Mr. Anderson.

Lepus glacialis.—At Cambridge Bay in January, 1853, a male Hare was killed; two young ones on June 29th and July 10th, of the same year.

AVES.

In no instance have I altered the synonymy adopted by Mr. Anderson, and it will be observed that he has used that of Richardson and Swainson in their 'Fauna Boreali-Americana,' Aves, 1831. By keeping this in view there will be little difficulty in identifying the species designated. The memoranda at my disposal are a list of species, and a very careful catalogue of the specimens preserved and brought to England; in every instance the sex, with locality and date of capture are duly recorded by Mr. Anderson.

Falco peregrinus.—A male and female obtained at Winter Cove, June 1st, 1852.

Buteo lagopus.—Ascertained to visit Prince Albert Land. This is the most northern locality from which, so far as I am aware, *Archibuteo sancti-johannis* has been recorded, and is an addition to the avifauna of the islands north of the American continent.

Circus sp.? Doubtless *C. hudsonius.*—Noted in a similar manner as the preceding; this is likewise the most northern range recorded of the species.

Strix nyctea.—It would have been somewhat extraordinary if the Snowy Owl, so generally distributed throughout the Arctic Regions, had not been recorded from Prince Albert Land. Dall and Bannister consider it rather a rare species in the valley of the Lower Yukon.

Hirundo bicolor.—A female of this species was obtained at Cambridge Bay, May 20th, 1853. Dall and Bannister mention that it is less common in Alaska than any of the other species, though occurring from Fort Yukon to the sea.

Alauda alpestris.—Two Shore Larks were obtained at Winter Cove, June 3rd, 1852. I am not aware of this species having been previously met with in the Parry Archipelago.

Linaria minor and *Linaria canescens.*—Two species of Linnet are recorded under the above names; a female bird procured at Winter Cove, April 27th, 1852, is noted as *L. canescens.* In all probability his *L. minor* is *Ægiothus linaria,* which is found in vast numbers as a permanent resident in the fur-countries. *L. canescens* was probably a Mealy Redpoll, and may have been *Ægiothus exilipes,* Coues. In the absence of the specimens to refer to, it is of course impossible to decide, but the recognition of two species by Mr. Anderson shows that he was a careful observer.

Emberiza nivalis.—A female Snow Bunting was obtained May 10th, and two males, June 5th, 1852, at Winter Cove, where the species was found breeding.

Emberiza lapponica.—Is included as another of the species visiting Winter Cove in 1852, and its nest with four eggs was procured there.

Corvus corax.—The Raven is merely recorded as one of the species ascertained to visit Prince Albert Land.

Tetrao rupestris.—The Rock Ptarmigan was observed at Winter Cove, where male and female were obtained, May 15th, 1852. On May 5th and June 10th, 1853, a male and female were shot at Cambridge Bay.

T. saliceti.—Ascertained to visit Prince Albert Land: a male bird was obtained at Cambridge Bay, May 6th; a second, May 16th; a third, May 18th; and a female, July 19th, 1853.

Grus canadensis.—A male and female of this species were killed, June 6th, 1852, at Winter Cove, where it was found breeding by Mr. Anderson, who obtained four eggs. This is the most northern breeding locality yet observed for this Crane, and I am not aware that it has been heretofore noted as nesting on the islands north of the American continent. Sir James Ross remarks that several individuals of a species of Crane were seen by him in the neighbourhood of Fury Beach, which were probably of the above-named species, but as no specimens were obtained they could not be identified with certainty.

Calidris arenaria.—At Winter Cove on June 9th, 1852, two male Sanderlings were procured,

Charadrius semipalmatus.—Two males and a female of this Ringed Plover were shot on June 9th, 1852, at Winter Cove, where the species was found breeding and the eggs procured.

C. virginicus.—The American Golden Plover was found at Winter Cove, where four male birds were obtained, June 10th, 1852; this species was found nesting at Cambridge Bay in 1853, and its eggs procured.

Vanellus melanogaster.—A male Gray Plover was procured at Winter Cove, June 11th, 1852, and a male and female at Cambridge Bay, July 14th, 1853.

Strepsilas interpres.—Is recorded as breeding in the vicinity of Cambridge Bay; four specimens, two males and two females were obtained there in June, 1853.

Tringa Schinzii.—The nomenclature adopted by Mr. Anderson shows decidedly that he followed Swainson and Richardson; doubtless their work was in the library of the 'Enterprise,' *T. Schinzii* of Sw. and Rich., F. B. A. ii. 1831, 384, is Bonaparte's Sandpiper, *T. fuscicollis*, Vieillot; and a reference to Mr. Dresser's 'Birds of Europe' and Dr. Elliott Coues' 'Birds of the North-West' show that little or nothing is known about its breeding haunts. It is therefore interesting to find that Mr. Anderson obtained two males at Winter Cove, June 9th, 1852; a female, June 10th of the same year, and further that he found this species breeding in the same locality, from whence he brought two eggs to England.

T. pusilla.—Two specimens of the Least Sandpiper were procured at Winter Cove, June 28th and July 6th, 1852, both being males. The eggs were found at Cambridge Bay in 1853.

T. pectoralis?—Under this name Mr. Anderson records the capture of two Sandpipers, males, on June 10th, 1852, at Winter Cove. In the absence of the specimens, however, it is not possible to say whether the species was correctly identified or not. Mr. Anderson mentions that the eggs of his *T. pectoralis* were found at Winter Cove in 1852.

Tringa sp.?—An unidentified Sandpiper was obtained at Winter Cove in June, 1852.

T. rufescens.—The Buff-Breasted Sandpiper was observed at Winter Cove, where two males and a female were procured, June 11th, 1852.

T. canutus.—A Knot, ascertained to be a female bird, was shot at Cambridge Bay, July 9th, 1853.

T. maritima.—A male Purple Sandpiper was obtained at Cambridge Bay, June 10th, 1853.

T. douglasii.—Two male Stilt Sandpipers were procured at Cambridge Bay, June 10th, 1853.

Phalaropus hyperboreus.—Two males and a female Red-necked Phalarope were procured at Winter Cove, June 15th, 1852. It was found breeding at Cambridge Bay, and the eggs were taken.

Sterna arctica.—Observed in Prince Albert Land in 1851-52, and three males and a female obtained at Cambridge Bay in July, 1853.

Larus glaucus.—This Gull was found breeding at Cambridge Bay in June, 1853, and a specimen was preserved.

L. argentatus and *L. argentatoides* are recorded by Mr. Anderson as two distinct species visiting Prince Albert Land. A female specimen of *L. argentatoides* was obtained June 11th, 1852, at

Winter Cove, where a female of *L. argentatus* was also procured the same month. Two males of the latter species were shot in July, 1853, at Cambridge Bay, where the eggs were also found. There is a further entry of three eggs of *L. leucopterus* having been procured at Cambridge Bay in 1853, but that species is not included in Mr. Anderson's list of birds. I am therefore inclined to think that the names of *L. argentatus* and *L. argentatoides* of the list should be considered synonyms for the form of Herring Gull which visits Prince Albert Land, and that *L. leucopterus* may very fairly be included as a visitor to that region.

L. Sabinii.—A male and female of Sabine's Gull were killed at Winter Cove in June, 1852, and a second pair, male and female, at Cambridge Bay in June, 1853. An egg of this species was taken at Cambridge Bay in 1853.

L. eburneus.—The Ivory Gull is simply recorded as one of the species ascertained to visit Prince Albert Land.

Lestris pomarinus.—Mr. Anderson includes in the catalogue of his collection a male of the Pomatorhine Skua. A pair were obtained at Cambridge Bay in June and July, 1853.

Stercorarius cepphus.—Nos. 90 and 91 of Mr. Anderson's Catalogue are thus named, and refer to a male and female Skua obtained at Cambridge Bay, July 15th, 1853. I have no doubt that Mr. Anderson was guided in his synonymy by Swainson and Richardson (Faun. Bor. Amer., ii., 1831, p. 432), and *S. cepphus* of those authors is certainly *S. crepidatus* (Gm.), Richardson's Skua.

Lestris Buffonii.—A male and female of Buffon's Skua were shot at Cambridge Bay in July, 1853.

Procellaria glacialis.—Ascertained to visit Prince Albert Land, but no specimen is included in the catalogue of the collection. It might possibly be the Pacific form *Fulmarus Rodgersi*, Cas.

Colymbus glacialis.—In all probability the form of Great Northern Diver ascertained to visit Prince Albert Land is *C. Adamsii*, Gray. A male was killed at Winter Cove, June, 1852.

C. arcticus.—Included in the list of birds of Prince Albert Land, and a male and female are recorded as procured at Winter Cove, June, 1852.

C. septentrionalis.—This bird was found breeding at Cambridge Bay, 1853.

Anser albifrons.—A male White-fronted Goose was killed at Winter Cove, June, 1852.

A. hyperboreus.—This Snow Goose was ascertained to be a visitor to Prince Albert Land. No specimen, however, is included in the catalogue of the collection.

A. Hutchinsii.—Mr. Anderson has entered this species in his list, as well as the fact of its breeding at Cambridge Bay, where he procured its eggs in 1853.

A. bernicla.—The Brent Goose is recorded as visiting Prince Albert Land. The eggs were found at Cambridge Bay in 1853.

Cygnus americanus.—Noted as visiting Prince Albert Land. Two eggs were found at Cambridge Bay in 1853.

Harelda glacialis.—Three males of the Long-tailed Duck were shot at Winter Cove in June, 1852, in which neighbourhood the eggs were also taken.

Somateria mollissima. — Although included in the list as *S. mollissima*, yet in his catalogue of specimens, Mr. Anderson adds "*var.*," so that there can be little doubt that the Eider Duck frequenting the shores of Prince Albert Land is *somateria*, v. *nigra.* Two males and two females were killed at Winter Cove in June, 1852, and two young ones were obtained at Cambridge Bay, August 6, 1853.

S. spectabilis.—Two males and one female of the King Duck were shot at Winter Cove in June, 1852, and a female at Cambridge Bay in July, 1853. The eggs were also found at Winter Cove.

NATURAL HISTORY NOTES IN HOLLAND.

By F. S. Mitchell.

During the summer of 1877 and of the present year, in company with my friend Altham, I spent some five weeks in various parts of Holland. Most of the time was passed at Valkenswaard, that ornithological paradise, but the avi-fauna of this part of Brabant has been so well investigated that little occurred worth chronicling, and I do not propose to give any detailed list of the species I met with. We arrived there, last year, on the 17th May, leaving on the 4th June, and travelled back through S'Bosch by steamer down the Maas to Gorkum and Dordt, finally leaving for home on the 11th June. This year we arrived at Dordt on the 9th June, where we remained until the 15th of that month.

To the field ornithologist who prefers labelling his specimens *ipse*, there is much to disappoint in Valkenswaard, and the boys, who, at the end of one of the numerous saints-days and holidays, bring their hatfuls of eggs of Orioles, Water Rails, Spotted Crakes, and Black Terns, afford but little satisfaction in reply to enquiries concerning unidentified possible rarities.

One ought really, at a place like this, to set one's face against any payment for eggs, unless they can be shewn *in situ.* The pleasure to be derived from taking with one's own hands a single clutch is far greater than that which emanates from the possessing of some score of eggs of whose history nothing is known. At the end of a fortnight, within a reasonable distance of the village, we found only empty nests and reed-beds trampled through, and our only chance of success was to take a long walk straight away from our quarters, or travel a few stations farther on the line and work back again.

The Black Tern, *Hydrochelidon nigra*, was one of the most interesting species we met with, and its graceful evolutions enlivened many an evening's walk over the marshy moor, as we returned tired and fagged after a long day. At this time, when their mates were sitting, it was very amusing to watch them take the Field Crickets, *Acheta campestris*, as they came to the mouths of their holes for a little fresh air. These were exceedingly numerous, their chirrupings forming a continuous refrain, and were evidently a favorite food supply for the Terns. Great quickness is necessary to catch them, as they never move far from their holes, and pop in on the slightest alarm, but very few evaded the swift stoop of the bird. The first fresh eggs of this species were taken on May 21st, and numbers had begun to sit by June 3rd. Nearly all the nests had three eggs, but a few were found with only two. We were lucky in discovering several large breeding-places which the boys could not reach, and thus had ample scope for observation. These places were large pools of standing water on the open heath, with boggy bits of island here and there, and heaps of wrack kept steady by the water-grasses; a few bits of grass were collected together, and the eggs laid on them. In such situations they were high and dry, but one nest in a running stream (the only one found so) was wet through, floating partly on the surface; it was composed of a considerable quantity of water-plants, and was kept steady by some rushes bent down. Our visits generally had to be paid early in the morning, and I cannot recommend 6 A.M. as a pleasant time for swimming about cold bogs and wandering, *in puris naturalibus*, over a floor of sharp reeds searching for eggs. We were fortunate enough once to find an old boat, half-sunk in the mud, and managed to launch it, but our appearance, with nothing on but hats and bathing-drawers, must have been an unwonted spectacle for any passers by.

It is curious to note how some nearly-allied species (only differentiated by slight variations of plumage) resemble, and in fact are identical with, each other in habits, mode of nidification, colour of eggs and song. I cannot, for instance, recognize the slightest difference in these respects between *Motacilla lugubris* and *M. alba*, *Acredula rosea* and *A. caudata*, *Cyanecula Wolfi* and *C. suecica*, though of the last I ought to say that I cannot speak positively as regards the song, my recollection of *suecica* in Norway not being good enough. The notes of the British and White-headed Long-tailed Tits are identical, as are also those of the Pied and White Wagtails, and of *Motacilla flava*, *M. viridis* and *M. Raii*.*

A nest of six eggs of Baillon's Crake, *Porzana Bailloni*, was brought to us, but these had been taken the previous year, and out of a lot of Willow Wrens I picked out the most abnormally small egg I have seen; it only measured ·383 by ·328 inches.

What a pity it is that such a pretty bird as the Hoopoe should have such repulsive habits, and that, in cleanliness, it should be inferior to a Jackdaw. It is the belief of the country people, a belief shared in by many of the better classes, that it builds its nest of human ordure, and any one who has ever closely approached a Hoopoe's nesting-hole, or a batch of young ones, would certainly from the stench respect the popular impression. A nest of five young, about a fortnight old, was seen

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* By these last three names we presume our contributor intends to designate the Grey, the Grey-headed, and Ray's Wagtails; but as the nomenclature now stands (Yarrell's Hist. Brit. Birds, 4th ed., vol. i., pp. 552, 558, 564) they should be called *Motacilla sulphurea*, Bechstein, *M. flava*, Linnæus, and *M. Raii* (Bonaparte), in the order named. *M. viridis*, if we are not mistaken, is the Indian form of the European *M. cinereicapilla*, not to be distinguished, in our opinion, from *M. flava*. We have never experienced any difficulty in distinguishing the note of the Grey Wagtail from that of Ray's Wagtail; indeed, we have frequently been made aware of the arrival of the former bird in winter by hearing its note from the bed of a stream in which for a few moments it has been hidden from view.—ED.

22nd May, and fresh eggs were obtained up to the end of the month, so that their time of laying varies considerably.

On the 4th June, near Gorkum, we first made the acquaintance of the Great Reed Warbler. *Acrocephalus arundinaceus*, and its numbers here are extraordinary; in a twelve mile walk from Sliedrecht to Gorkum, along the banks of the Merwede, after eight o'clock at night, its curious craking notes never ceased, except as we passed through the villages. There must have been hundreds of these birds along the river. We found one nest on the 8th, containing two young, just hatched, and two eggs chipped by their occupants, but this was an exceptionally early one; and out of a dozen or more nests found in various stages, we only saw three eggs in all. In the present year, however, round about Dordt, we took numbers from the 10th to the 13th June, five eggs being the full complement. These birds appear to prefer the vicinity of the open water, and the nests are seldom placed but on borders of the reed-beds just raised sufficiently to escape the highest tides, though often so little above the surface that the bottom is in the water at each flood. They are often placed in willow forks, as well as interwoven with the reeds, and are built of water-plants, small reeds and grass, sometimes mostly of grass mixed with a little moss, the lining being of finer bits of reed and grass. The birds are very anxious and noisy if disturbed after beginning to sit, and look quite fierce as they dash about within a yard of your head, opening wide their red throats, and chiding loudly.

There are some vast reed-beds—I might almost say "reed forests"—around Dordt, tenanted by not a few Bitterns, *Botaurus stellaris*, and it was not at all uncommon, even in the middle of the day, to hear their unearthly "boom" echoing through the air; but they take up their abode in such inaccessible places that undivided attention must be given to them, if nests are to be taken. We got within a few yards of a bird one day, but it managed to escape our view, and its nest also, for we had to retire before the rising tide. It is no joke being overtaken by the tide in a square mile of reeds eight feet high. Some of these reeds grow to an enormous height, one we measured being twelve feet nine inches in length!

The Marsh Warbler, *Acrocephalus palustris*, was in considerable numbers, but it had not begun to lay, and the only satisfaction we had was in finding several nests, just ready for eggs, fixed on the reeds like those of *A. streperus*, and beautifully lined with horse-hair. Sometimes they were right in the middle of the beds, and sometimes in more open places.

We came across two pairs of Savi's Warbler, *Locustella luscinoides*, but only found the nest of one of these, and it contained five young, almost fledged, this being on the 12th June. It was beautifully constructed of the broad, flat tops of the reeds, very deep and symmetrical, and we brought it away with us, removing the young into that of a Sedge Warbler procured for the purpose. It was most carefully concealed in a thick bunch of grass, close to ths ground, and in a very boggy place, though not one affected by the tide, it being on the landward side of the dyke bounding the Hollandsch Diep. The old birds were never seen near the nest, and then only for a moment, as they flew for a few yards over the reed tops, and then popped down again. Their "trill" is very distinguishable from that of the Grasshopper Warbler, not being (as Mr. Dresser remarks) so continuous, and having more tone. I thought of attempting to rear some of the young, but on going for them found them gone. The parents, no doubt, had removed them, such being the habit of the Warblers, if their nest be disturbed, and the young fit. They were not able to fly.

On the 11th June, we watched for a long time a pair of large birds with hawk-light flight, which were quartering the marshes very assiduously, and whose identity puzzled us a good deal at first, but which turned out to be Marsh Harriers, *Circus æruginosus*. We put up one of them from the nest, which was only about fifty yards distant from that of the Savi's Warbler just described, and in the same marsh, about ten yards from firm ground. The nest was a large heap of reeds and sedges forming a flat mass three feet long, and two feet across, and appeared to have been used many years, one nest being built on the top of another. There were three young, the eldest a week, and the youngest a day or two old. They were covered with brownish yellow down; cere and legs, yellow; bill and claws, black; iris, very dark brown. We brought two of them home, leaving the youngest, and on June 20th, the elder of these attacked the other, injuring it so much that it died next day. On June 22nd the sprouting quills and tail were black, tipped with brown; scapularies, black; wings from tip to tip, 2 feet 8½ inches. June 29th, wings, 3 feet 4½ inches. July 18th, 4 feet 2½ inches. On the 24th September, the expanse of wings was 4 feet 5½ inches, and the down had disappeared altogether, except a few sprays on the head, the crown of which, with the chin, was of a rich chesnut. The irides light hazel-brown; the rest of the body, wings, and tail, dusky black; most of the feathers tipped with light chesnut-brown, and some on the shoulders and nape margined with this colour. The upper tail-coverts are lighter and the tips more reddish. The pellets ejected by the young birds before they had been fed artificially consisted mostly of mouse and rat-hairs, mixed with small bones, bits of beetle wing-cases, and seeds of plants; the last probably from the intestines of the rats.

We had rather an unpleasant rencontre on one occasion with some fishermen who tenant one of the islands of the Hollandsch Diep, on which we had landed. It was raining in torrents, and after fighting our way for some time through reed-beds soaking wet, and losing ourselves in a willow-swamp, we hailed with joy a well-made footpath, at the end of which we suddenly came upon an elaborate decoy for wild ducks. Never having seen any of our English ones, I am unable to say whether they are constructed on a similar principle, but this one consisted of perhaps an acre of open water fringed with trees and bushes, and with a "pipe" at each of the four corners. These "pipes" were arranged, so to say, in two pairs, each pair leading in a curve along the north and south sides of the pond, until their apices nearly met. I had walked round and examined the "pipes," and was watching a small flock of ducks which were on the water, when I heard a shout from my companion, and going to him, found him being most menacingly accosted by two Dutchmen, whose excited words, though unintelligible to us, evidently expressed some very forcible ideas. We were trespassers, there was no doubt, and looked upon with great suspicion, which was not much allayed by our endeavours to indicate our pursuits by displaying the entomological collecting-boxes. Unable to muster sufficient Dutch to explain our peaceable intentions, we parted from our sulky companions, who professed to point out the way to our boat; but to make a long story short, we followed their directions until we were regularly fast in swamp and tangled willow, and with a rapidly rising tide. They then came to us in a boat, and gave us to understand that for the small sum of "twee gulden" they would take us to our own boat, otherwise, if we remained where we were, the tide would rise up to our breasts. We paid our money, and they kept their bargain. Of course we did not venture there again.

The following insects were procured at Valkenswaard, in the identification of which my friend Mr. Naylor has kindly helped me:—

COLEOPTERA:—*Cicindela campestris, hybrida,* and *Germanica; Silpha thoracica, nigrita,* and *reticulata; Pterostichus dimidiatus; Carabus granulatus* and *auratus; Lina populi;* a species of *Galerucidæ,* and also one of *Elateridæ,* not determined yet; *Coccinella 14-punctata.*

ORTHOPTERA:—*Acheta campestris.*

HYMENOPTERA:—*Vespa crabro.*

The caterpillar of the Goat Moth, *Cossus ligniperda,* was taken on some willows on the banks of a pond, and that of the Poplar Hawk Moth, *Sphinx populi,* was also obtained. Four dead specimens of the Emperor Moth, *Saturnia pavonia-minor,* were picked up on one of the heaths, and the Buff-tip, *Pygæra bucephala,* was very common. Near Dordt we found some hedgerows and gardens completely devastated by the Forty-spot Moth, *Hyponomeuta padellus.* Without exaggeration, in several hundred yards of hawthorn hedge, there was not a single leaf; it was completely covered by their webs and caterpillars. Hundreds of apple-trees, too, were in the same state. On the hawthorn there were also mixed with them a considerable number of caterpillars of the Gold-tail, *Porthesia auriflua,* but we did not see them on the apple. We also took the Drinker Moth, *Odonestis potatoria,* on the buckram grass near the Savi's Warbler nest, and of other Lepidoptera:—*Cataclysta limnata, Lomospilis marginatus, Camptogramma bilineatus, Tortrix viridana,* from Willemsdorp: *Clisiocampa neustria,* from Dordt.

Amongst the *Neuroptera* we procured specimens of *Panorpa communis.*

We collected a few *Mollusca,* amongst which were identified *Planorbis corneus* and *carinatus, Limneus stagnalis, Helix nemoralis* and *hortensis,* and *Paludina vivipara.*

NOTES FROM AN ARCTIC JOURNAL.

By H. W. Feilden, F.G.S., C.M.Z.S.

(Continued from Zool. 1878, p. 451.)

On the 24th of August, a lead opening to the westward, our ships left Bessels Bay, and, crossing Hall Basin, we entered, early on the following morning, a large and well-protected harbour on the coast of Grinnell Land. The aspect of the western side of the Sound differs entirely from the Greenland or eastern shore which we had just left. Instead of the mural cliffs of limestone capped by a *mer-de-glace*, with glaciers descending into the sea, Grinnell Land appeared as a series of peaked mountains rising to an altitude of 2000 to 3000 feet, with deep valleys intervening between them. Though covered with snow at that season, yet we could see that no glaciers occupied the valleys, and that in all probability they would prove accessible. As we neared the inner shore of the bay a herd of Musk-oxen were seen about a quarter of a mile from the shore: a party from our ship landed, and, after a smart chase, killed the entire herd numbering nine—an old bull, four old cows, two young bulls, and two young cows. This provided us with a supply of over 2000 lbs. of fresh meat. Unless shot through the heart, the Musk-ox is very tenacious of life; their shaggy coat is a great protection, and when wounded or brought to bay their habit of facing the enemy, sinking their muzzle, and only exposing the crown of the head with its armature of horn and heavy horn cores, renders the animal almost bullet-proof. The old bull, though shot through the body and with a hind leg broken, still kept facing us and endeavouring to charge. One of us stepped up to within five paces and fired a Snider rifle bullet point-blank between its eyes. This had no appreciable effect, and an examination of the skull afterwards showed merely a dent where the bullet had struck. Not until the animal was taken in flank and a bullet put into the region of the heart did it succumb. This animal was as large as any we afterwards procured. Its head and horns weighed 54 lbs., rest of the hide 50 lbs., and the carcase, when cleaned and brought on board ship, 385 lbs. The measurements of the head were as follows:—From apex of skull to point of nose, 24 inches; breadth between the eyes, 13 inches; horns, measured inside the curve, 26 inches: greatest breadth of horn, 11 inches. The stomach of these animals is very capacious. This old bull had as much in it as would have filled four ordinary stable buckets. It consisted entirely of the leaves and shoots of *Salix arctica* and grasses. In none of those I examined were any lichens, which is the food usually ascribed to these animals.

During the winter season the Musk-ox is covered with a long stapled fine wool in addition to its coat of hair. This wool is of a light yellow colour, and of a beautiful silky texture, but at the season when we shot the animals very easily detached from the hide; indeed, it would not adhere to the skins of any of the animals we killed, but came away from it during the process of curing. Owing to the great length and softness of this wool* the fleece of the Musk-ox, if obtainable in sufficient quantities, would be of considerable value, and, if it were possible to reintroduce this animal into Great Britain, or to the continent of Europe, it would be a most valuable accession to our fauna. No doubt from the nature of the lands inhabited by the Musk-ox at the present day it would be a matter of considerable difficulty to capture and convey the animals to Europe, but I imagine the difficulties in the way are not insuperable. To equip an Arctic Expedition simply with a view to capture some young Musk-oxen would hardly be a practical suggestion, but these animals still wander in considerable numbers amid the barren lands of the North American Continent and along the shores of its Frozen Ocean. The influence of the Hudson Bay Company extends even to those desolate regions, and the acclimatisation of the Musk-ox is a matter worthy of the consideration of the gentlemen who direct the affairs of that Company in America. In any case a living example of the animal would command a great price from the zoological societies of Europe. From what I have seen of the Musk-ox in a state of nature, it does not appear that there would be any great difficulty in domesticating it. Its habit of flocking when alarmed by a dog, and facing its foe, would render it amenable to guidance, and I am quite sure that the Musk-oxen we met with in Grinnell Land might all have been headed and brought to bay by one of our Scotch sheep-dogs.

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* According to Richardson (Fauna Bor. Amer.), stockings made from the wool were more beautiful than silk ones.

The harbour that we had reached appeared so admirably suited for a ship's winter-quarters that Captain Nares decided to leave the 'Discovery' there, and, in consequence, this large inlet was named Discovery Bay. The 'Alert' quitted her consort on the 26th August; but owing to the mouth of the harbour being blockaded by heavy pack-ice it was a couple of days before we lost sight of the masts of the 'Discovery,' and were again fairly in the channel. By that date the short summer of the Polar zone had come to an end, the temperature of the air throughout the day sunk below freezing-point, the few species of birds that make those regions their breeding-haunts were hurrying south, whilst the streams, rivulets, and marshes were frozen over. A few small bands of Knots and Turnstones were seen winging their way southward, following the coast-line, and associated with them were parties of Snow Buntings.

Somewhat to my surprise, on a small islet just at the entrance of Discovery Bay, we found some eight pairs of the Arctic Tern, *Sterna macrura*, breeding, and a newly-hatched young one in a nest surrounded by snow; but Admiral Richards, when sledging in Belcher Channel, in 77° 8′ N., on August 29th, 1852, likewise found a colony of these birds nesting, and three young ones unfledged in their nests.

On the 28th August the rudder of the 'Alert' was so injured by contact with the ice that the ship was run alongside of the shore-ice in the most sheltered position obtainable and the spare rudder fitted. Whilst we were thus employed a small party of five Musk-oxen were seen on shore, and several of us started in pursuit, eventually securing three of the animals. I there met with an accident which might have had serious consequences, but, fortunately, was only productive of a laugh against me. One of the Musk-oxen, a young animal about three years old, being badly wounded, separated from the herd. Following it alone I came up with it in a valley where the deep snow hampered its progress. Another shot fired brought it to a standstill. When I got alongside of it the animal put its head to the ground and came towards me, but stopped when I struck his muzzle with my gun. Reflecting that we were some three miles from the ship, and the intervening ground very rough, and deep in places with snow, it struck me it would be an excellent thing if I could induce the wounded animal to transport its own carcase to the beach, and, consequently, by backing in the direction of the sea I got the Musk-ox to follow me. At last the animal stopped, and, losing all patience, I laid hold of it by the horns and endeavoured to drag it the way I wanted. This was too great an insult; the animal drew back, gave an angry snort, and, striking me in the stomach, knocked me nearly senseless into the snow, my rifle flying in another direction. Fortunately for me the beast did not follow up its advantage. I rolled away as soon as possible from under its nose, and, getting hold of my rifle again, shot it dead.

After re-fitting the 'Alert' with a new rudder, the passage of Robeson Channel was again attempted; but on the 30th August we were caught in the pack off Lincoln Bay, and our ship was in very great danger of being crushed. The ice which surrounded us when in the pack was of amazing thickness, the floe-pieces floating eight and ten feet above the water, or, in other words, representing fifty to a hundred feet of thickness. As these masses closed against one another their edges crumpled up, and ridges of hummocks reared themselves to a height of twenty feet above the level of the floes, overtopping the bulwarks of the ship. Fortunately we were protected to some extent by a quantity of rubble-ice, which was packed between the heavier floes, and, acting as a buffer, fended off the greater part of the pressure, but the ship groaned and creaked, and the dismal sound of the ice crunching against her sides added to our discomfort, knowing that we were drifting helplessly with the wind and tide. Fortunately, however, we managed to clear out of the ice, and gained the shelter of Lincoln Bay just as a strong southerly gale came tearing up the channel.

Whilst fastened to the land-ice of Lincoln Bay some of our party went on shore and brought back two Hares. One weighed nine pounds, the other only five and a half. Both had the ears tipped with black. The smaller of the two had a malformation of the skull, the nasal bones being twisted to the right and the incisors of the upper jaw deflected in that direction. In the lower jaw only the left incisor was developed, and that protruded in nearly a horizontal direction to the front. A dead Knot was picked up, and two Ivory Gulls were seen flying about the ship. Aldrich, when fixing ice-anchors, observed what he described as a yellowish-coloured worm-like creature wriggling in the water, which measured about nine inches to a foot in length. This was, doubtless, a free-swimming Annelid.

By the morning of the 1st September the strong gale from the south-west had pushed the pack so much off the shore that a water-way was visible as far as Cape Union. This we ran through under sail, and in the highest state of excitement; but our joy was short-lived, for, after rounding Cape Union, the land, instead of stretching north, trended to the N.N.W. The lane of water came to an end, and in front of us was the illimitable Polar pack. Under the lee of the stranded masses from the Polar floes we took shelter, and this spot afterwards, given the name of Floeberg Beach, became the winter-quarters of the 'Alert' during 1875 and 1876.

It is hardly within my province to detail the various endeavours made to gain a more northern position. This has already been told by Captain Nares in his account of the voyage. I may merely state that it was some days before we could realize that our progress northward in the ship was at an end. We had to wait for clear weather, and many an ascent of the hills in the vicinity, then deep in snow, before we could force ourselves to believe that President Land, reported by the American 'Polaris' Expedition, and laid down in their charts, was a myth. However, we were all, even the most sanguine, forced at length to admit that such was the case.

As soon as Floeberg Beach had been finally designated as the place for wintering, the greatest activity prevailed amongst our small crew; provisions had to be landed, spars lowered, anchors and cables taken on shore, and, besides, preparations had to be made for the serious work of the Expedition, namely, advancing by sledge-parties, the depôts of provisions to be used in the explorations of the following year.

The country in the vicinity of our winter-quarters at that time presented a very dismal appearance; the new fallen snow lay thick and soft, the young ice was forming rapidly over the pools between the grounded pack and the shore. We were also subjected to fog and snowstorms, with a daily falling temperature. Animal life was very scarce; a few Eider Ducks, a family-party of Long-tailed Ducks, a few Turnstones, a single Snow Bunting, a Dovekie, and a Hare were all that we saw in the neighbourhood. On the 5th September Markham and Aldrich, whilst sledging in the direction of Cape Joseph Henry, came across eleven Eider Ducks in a small patch of water near the entrance of Dumbell Bay. Three were old birds, the others about three-parts grown. They shot five of them with their rifles, but finding that the ice around the pool was too thin to support them they had to leave the dead birds. A Turnstone kept flying around, and when the firing ceased alighted on one of the dead ducks which had been shot through the head, and greedily devoured the brains and exposed flesh. This shows to what straits the birds visiting the Polar zone are sometimes reduced to at times, for I have already noticed the finding of a Turnstone with its stomach filled with the seeds of *Draba alpina*.

During the whole of the month of September and up to the middle of October, when the sun disappeared, sledge-parties were absent from the ship. All engaged in these operations suffered more or less from the dangers and discomforts inseparable from autumn-sledging. Three men on returning to the ship had to submit to amputation of part of their feet on account of frost-bite, and several others were laid up and disabled for a long time. They had the satisfaction, however, of knowing that the work they had been engaged on was admirably performed, and that a large *depôt* of provisions had been placed in advance on the northern coast-line, in readiness for next year's sledging.

The result of our zoological observations during these journeys was very meagre. Aldrich, and Frederic our Greenlander, saw a seal, *Phoca hispida*, in a pool of water not far from Cape Joseph Henry, in lat. 82° 47′ N.; another was killed at Dumbell Harbour, lat. 82° 30′ N., by Dr. Moss; a few Hares were seen and secured; the tracks of Foxes, Lemmings, and Ermine were seen, but not the animals themselves; and I found the skeleton of a Musk-ox in lat. 82° 33′ N. Only a few birds were met with; a pair of Long-tailed Ducks were shot on September 16th; a Snow Bunting was seen on the 14th of the same month, in lat. 82° 35′ N. Markham came across four Ptarmigan, *Lagopus rupestris*, in lat 82° 40′ N., on September 29th; and the last bird seen in the autumn of 1875 was a Snowy Owl, on October 2nd. When returning on that date to the ship I noticed a large white bird perched on the top of a hummock. On going to the cabin for a gun I found my companions seated at dinner, so, being unwilling to disturb them, foolishly went in pursuit of the bird by myself; it was snowing at the time, and the spaces between the hummocks being filled up with drift, hid the cracks and were very treacherous. When I got within about seventy yards of the bird the snow and slush gave way beneath me, and I sunk through the snow above my middle into water over my knees, without feeling bottom, but by good luck I managed to scramble out on to a firm piece of ice. After firing a parting salute at the owl, which made it flap off lazily to the southward, I ran back to the ship at my best pace, but before I reached it that portion of my clothing which had been immersed was frozen as hard as any board. With my present experience I should think twice before chasing a bird over unsolidified pack in the winter, and certainly would not dream of doing so again without a companion and a piece of rope.

The finding a species of Charr, (*Salmo arcturus*, Günther), in a small lake in lat. 82° 34′ N., was of importance, as it convinced us that these pieces of fresh water cannot freeze to the bottom during winter. Dr. Günther states that this salmonoid comes nearest to the Charr of Killin, Inverness-shire, but cannot be considered identical. In the stomach of one I examined, captured in October, I found a perfect and beautiful *Hydrachna*, and the remains of some dipterous insects. It is an interesting and unsolved problem with me, how these fresh-water fish got to the lakes they now occupy. The pieces of fresh water in which we found them are at no great altitude above the present sea-level, and in every instance communicate with the sea, whilst the area in which they are situated is undoubtedly one of rapid upheaval. These lakes are fed by the melting of the surrounding snow, and have no communication with lakes at a higher altitude, which, if ever they existed, are now hidden by the perpetual snow. Still I think it more likely that these Charr are the descendants of an ancient race that retreated to the shore-line as the land rose, and their old habitats became buried in snow, than immigrants from the sea in modern times; for all the species of Charr with which we are acquainted are essentially fresh-water fish. In the Færoe Islands, which apparently have been separated from the continent of Europe since Miocene times, a species of Charr is found; and it would be very desirable to compare Færoese specimens with those from Grinnell Land.

Our allies the Eskimo dogs did us good service during the autumn-sledging. At one time we had thirty of them on board the 'Alert,' but disease and weeding-out the worthless ones reduced the pack to about one-half that number by the commencement of winter. The origin of the peculiar disease to which these animals are subject has not yet been explained. In one form the disease commenced with staggering, accompanied by foaming at the mouth. Between the paroxysms the unfortunate animals wandered about in a half-conscious state, snapping at everything that came in their way, their countenances exhibiting a peculiarly distressed and anxious appearance. In most cases the disease was accompanied by great constipation, which, with some, yielded to a drastic purge of croton oil, whilst the later stage of collapse was alleviated, and in one or two instances overcome, by giving warm soup and stimulants. Another form of attack was very common on the sledge-journeys. When running, the dog would give a yelp and roll over on its back, the legs jerking spasmodically, and foam in many cases pouring from the mouth. The animal generally recovered from these attacks in a few minutes, and would renew its pulling with the team, but for the rest of the day would have a foolish, dazed expression. That in some cases the animals were semi-conscious during these attacks was shown by their anxiety to get away from the neighbourhood of water, of which they stand in considerable dread, experience having taught them that, when sledging, the presence of water and treacherous ice may be coupled together. That the disease is not true rabies is certain, for there is no evidence that it is transmissible by a bite; neither has a case of hydrophobia ever been recorded from the settlements in Greenland, where the disease has been rife. The recovery also of many of the animals attacked is still further proof, if necessary. It is very evident that darkness is not the producing cause of the disease, for our pack suffered as much, if not more, in the period of perpetual daylight as during the winter. The disease attacked dogs of the pure Eskimo breed and those showing a cross with rigid impartiality, and we could detect no difference in the symptoms occurring in either strain. Still more singular is the fact that during the summer of the following year, a beautiful black retriever bitch, brought from England by Captain Markham, which lived in the wardroom and enjoyed excellent health during the winter, was attacked when out walking with me in a precisely similar manner to the Eskimo dogs. From that date until her arrival in England she sickened and pined away, but immediately after landing recovered, and is now as healthy an animal as one would wish to see. A cat now in my possession, and in perfect health, used to be seized with fits, of precisely the same description as those which attacked the dogs, when taken on the upper deck, to which she had the greatest aversion, even in summer. The Eskimo dogs, though voracious and filthy feeders,* could not be induced to eat bread-biscuit or even meat-biscuits which had been brought from England especially on their account. On October 13th, Egerton, who had been driving a dog-team, told me that two of his dogs had been taken with fits, on his return journey, and that a third, when close to the ship, gave a yelp and rolled over dead. This animal he had brought alongside for me on the sledge. When I got hold of the dog it had not been dead more than ten minutes, and, though exposed to a temperature of minus 10° F., was quite limp, so I conveyed it below and placed it in a cabin with a temperature varying from +33° to +38 F°. There it remained seventeen hours, and at the expiration of that time I went to dissect it. Much to my surprise I found its abdominal regions in a state of putrefaction, and the smell in the cabin so overpowering that it had to be washed out with carbolic acid and hot water to render it habitable. I opened the heads of several of these animals, and, in accordance with a suggestion of Professor Huxley, searched but without success for *Pentastomum*, a large-sized vermiform parasite which occurs in the frontal sinuses of the dog. The period of gestation with the female of the Eskimo dog is precisely the same as that of other domesticated dogs.

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* Stercore humano precipuè gaudent. Per longam hiemem apud Floeberg Beach hoc pabulo, præ ceteris omnibus, vesci solebant ita ut *canes stercorarios* accuratius eos vocares. Quin etiam, quum itinera facerent, ipse auriga ne ventrem quidem laxare ausus est, nisi fusti aut flagello armatus, quo avidos canum greges arceret.

(To be continued.)

THE LAND AND FRESHWATER MOLLUSCA OF MAYO AND SLIGO.

By Amy Warren.

So far as I am aware, no catalogue of the Mollusca of these counties has been published, and, as local lists from remote districts are always interesting to naturalists, I have ventured to send you the following catalogue of the shells I have collected in this part of Ireland. The area that I have hitherto worked has been very limited, extending only a few miles into either county from Ballina. I am the more induced to forward it, short as it is, in the hope that other conchologists who may have collected beyond this area may help to complete the catalogue by sending to 'The Zoologist' the result of their researches.

The nomenclature and arrangement which I have adopted is that of Mr. Gwyn Jeffreys, who has very kindly named some of the specimens for me. I must also express my acknowledgments to Mr. A. G. More for having obligingly assisted me in determining some of the rarer forms.

I. TERRESTRIAL MOLLUSCA.

UNIVALVES (GASTEROPODA).

Fam. Limacidæ.

Arion ater. The Black Slug.—Common everywhere.

A. hortensis. The Garden Slug.—Very common in gardens.

Limax gagates. The Brown Slug.—Common in the garden here at Moyview. During the rainy weather of the past autumn I got several on the cabbages. Mr. Norman has given a very good description of this slug in 'The Zoologist' for 1853, and has remarked that when at rest it assumes a more rounded form than any other member of the genus, contracting and squeezing itself into so small a compass that its height is but little exceeded by its length. Its slime is thick and glutinous, resembling varnish.

L. marginatus. Sowerby's Slug.—I have found three examples of this slug in the woods at Moyview.

L. agrestis. The Field Slug.—Is only too abundant. It caused great destruction in the oat-fields this year, cutting down the young plants in vast quantities.

L. arborum. The Tree Slug.—Common in the woods. It prefers old trees, feeding on the decayed wood and not touching the leaves.

L. maximus. The Great Slug.—This is not so common as the two last-named species.

Fam. HELICIDÆ.

Succinea elegans. The Slender Amber Snail.—Abundant beside every stream. I have not yet found any other species of *Succinea* here.

Vitrina pellucida. The Transparent Glass Shell.—Everywhere distributed under wet leaves in hedgerows and in woods.

Zonites cellarius. The Cellar Snail.—Common, in cellars and drains, and under loose bricks and large stones.

Z. nitidulus. The Shining Snail.—Moyview woods, Sligo.

Z. purus. The Clear-shelled Snail.—Sparingly under moss.

Z. nitidus. The Glossy Snail.—I met with a few specimens in a marsh on the glebe lands of Killanley, Sligo.

Z. crystallinus. The Crystalline Snail. Common.

Z. fulvus. The Tawny Snail. In marshy land at Moyview and Killanley.

Helix aculeata. The Prickly Snail. Rare in this district. I have only found it in one spot, namely, in one of the Moyview woods amongst mossy stones.

H. aspersa. The Common Garden Snail.—Abundant. I have found a pale yellow and white variety on the ruined walls of Moyne Abbey, near Killala, Mayo.

H. nemoralis. The Wood Snail.—Generally distributed, and exceedingly numerous on the sand-hills of Bartragh Island, Killala Bay, where the var. *hortensis* is also common, and their colours are more bright and varied than I have seen in any other locality.

H. rufescens. The Rufescent Snail.—Most abundant.

H. hispida. The Bristly Snail.—Common.

H. sericea. The Silky Snail.—I have obtained this species in one locality only. It is abundant in a small field of moist meadow land on Killanley Glebe. I think it must be rare in Ireland, for Mr. Gwyn Jeffreys has not mentioned an Irish locality for it in his valuable work on British Conchology.

H. caperata. The Wrinkled Snail.—Rather common.

H. ericetorum. The Heath Snail.—So numerous that on a moist day in summer it is difficult to avoid crushing them at every step as they crowd on the grassy pathways.

H. rotundata. The Rounded Snail.—Common everywhere.

H. rupestris. The Little Wall Snail.—Numerous on old walls.

H. pygmæa. The Pygmy Snail.—Generally distributed, although not numerous.

H. pulchella. The White Snail.—Common.

Bulimus acutus. The Banded Twist Shell.—Abundant on the sand-hills of Bartragh Island, and also on those of Enniscrone on the Sligo side of the bay.

Pupa ringens, Jeffreys.—Sparingly at Moyview and Killanley; abundant in the old woods of Belleek Manor, the seat of Sir Charles Knox Gore, near Ballina.

P. umbilicata. The Umbilicated Chrysalis Shell.—Common.

P. marginata. The Margined Chrysalis Shell.—Hitherto I have only found the dead shells of this species once on the sandy shore of Bartragh, and on another occasion at Enniscrone, where I procured several, in company with *Vertigo angustior,* washed up on the sands by the little river flowing past the village.

Vertigo antivertigo. The Marsh Whorl Shell.—Generally distributed.

V. pygmæa. The Dwarf Whorl Shell.—Common.

V. substriata. The Slightly-striate Whorl Shell.—A few specimens at Killanley only.

V. angustior. The Narrower Whorl Shell.—I have found this rare shell in the marshy meadow at Killanley Glebe, and a few weathered shells on the margin of the river at Enniscrone. Mr. Gwyn Jeffreys only mentions two Irish localities for it, one in the Co. Clare and the other at Connemara in the Co. Galway.

V. edentula. The Toothless Whorl Shell.—Under wet leaves in one of the woods at Moyview it is rather abundant. I have also found a few at Killanley.

Balia perversa, vel *fragilis.* The Fragile Moss Shell.—Generally distributed.

Clausilia rugosa, vel *nigricans.* The Dark Close Shell.—Abundant everywhere.

Cochlicopa lubrica. The Common Varnished Shell.—Plentiful.

Carychium minimum. The Little Sedge Shell.—Numerous everywhere under moss.

II. AQUATIC MOLLUSCA.

BIVALVES (CONCHIFERA).

Order LAMELLIBRANCHIATA.

Fam. SPHÆRIIDÆ.

Sphærium corneum. The Horn-coloured Sphærium.—Common in several small lakes in the district; and in Lough Conn, Mayo, I have found also the var. *flavescens.*

Pisidium fontinale. The Stream Pea Shell.—Common.

P. pusillum. The Little Pea Shell.—Still more common and numerous than the last-named.

P. nitidum. The Glossy Pea Shell.—Cloonagh Lough is the only locality where I have obtained this bright little shell.

P. roseum. The Rosy Pea Shell.—Rather rare.

Fam. UNIONIDÆ.

Unio margaritifer. The Pearl Mussel.—Mr. Little, of the Moy Salmon Fishery, has given me several very fine specimens of this shell, taken by the fishermen from the Moy above the weirs at Ballina. I have also got some from Mr. Symes, of the Geological Survey, procured by him, I believe, in the river at Newport, Mayo.

Anodon cygnea. The Swan Mussel.—Numerous in Cloonagh Lough, and Mr. Little has given me two young shells from the Moy.

Order PECTINIBRANCHIATA.

Fam. NERITIDÆ.

Neritina fluviatilis. The River Neritina.—This peculiar and pretty little shell I have found in Cloonagh Lough, a little moorland lake about a mile and a half from Ballina, on the Mayo side, and in Lough Talt, situated in the Ox Mountains, Sligo. Dead shells have also been taken from the mill-race of Bunru Mills, near Ballina.

Fam. PALUDINIDÆ.

Bythinia tentaculata. The Tentacled Bythinia. — Common everywhere.

Fam. VALVATIDÆ.

Valvata piscinalis. The Common Valve Shell.—Generally distributed.

V. cristata. The Crested Valve Shell.—I have obtained this species in two places only, viz., in a pond at Dooneen, Sligo, where it is plentiful; and in a slow stream near Enniscrone, Sligo, where I have found a few specimens.

Order PULMONOBRANCHIATA.

Fam. LIMNÆIDÆ.

Planorbis nautileus. The Nautilus Coil Shell.—Somewhat rare. I have taken a few shells in Raroneen Lake, Mayo, and the var. *cristata* in a slow stream in Castletown demesne, Sligo.

P. albus. The White Coil Shell.—Cloonagh Lough only.

P. glaber. The Smooth Coil Shell.—Very rare. I have only procured it on one occasion, when I found two or three in a slow stream near Enniscrone, Sligo.

P. spirorbis. The Round-spired Coil Shell.—Very common in old bog-drains.

P. contortus. The Twisted Coil Shell.—Common and generally distributed.

Physa hypnorum. The Slender Bubble Shell.—Extremely abundant in an old bog-drain near Castletown, Sligo. The specimens met with, however, are all of small size. The largest I have seen here were given me by Capt. W. K. Dover, taken by him from a deserted quarry-hole at Knockroe, Sligo.

P. fontinalis. The Stream Bubble Shell.—Generally distributed.

Limnæa peregra. The Wandering Mud Shell.—Common everywhere.

L. stagnalis. The Pond Mud Shell.—Generally distributed.

L. palustris. The Marsh Mud Shell.—Common.

L. truncatula. The Truncate Mud Shell.—General, though not plentiful.

Ancylus fluviatilis. The River Limpet.—In several localities on and under stones in shallow water as well as on submerged leaves.

OCCASIONAL NOTES.

Weasel assuming a White Winter Coat.—On November 25th, 1878, a female Weasel was killed at Northrepps, Norfolk, which was evidently assuming a white winter coat, a circumstance which is very rare in the Weasel, though not uncommon in the Stoat. In this specimen the front and sides of the head are already quite white, and white hairs are appearing amongst the brown ones, in all those parts of the animal which are normally brown, and especially on the flanks and tail.—J. H. Gurney (Northrepps Hall, Norwich).

Occurrence of the Black-throated Wheatear in Lancashire.—At a meeting of the Zoological Society held on the 9th November last, Mr. Sclater exhibited a specimen of the Black-throated Wheatear, *Saxicola stapazina*, which had been shot at Bury, in Lancashire, on or about the 8th May, 1875, and read an extract concerning it from a notice communicated by Mr. R. Davenport, of Bury, to 'Science Gossip' of October 1st, 1878. From this communication, and from subsequent correspondence with Mr. Davenport (Proc. Zool. Soc., 3rd Dec., 1878), it appears that the bird in question was shot by Mr. David Page, of Bury, on the margin of the Bury and Radcliffe Reservoir, and was taken in the flesh to Mr. Wright Johnson, of Prestwick, to be mounted. Mr. Johnson ascertained the sex by dissection to be a male. This is believed to be the first time this bird has been met with in the British Islands. It is figured by Mr. Dresser ('Birds of Europe,' part xxv.), under the name *Saxicola rufa*.—J. E. Harting.

Sabine's Snipe in Lancashire.—I have just set up an adult female Sabine's Snipe, which was killed near Rufford, twelve miles from Liverpool, during the second week of December, and was brought to me along with a Spotted Crake. I have preserved the ovary for my own collection, and, without breaking the egg-bag, counted 268 eggs; whence it appears to me that it is one of the most abundantly supplied wild birds I know. The form of the ovary in Sabine's Snipe is peculiar; it is broadest at the top, narrowing down to two eggs in width, like a long narrow bunch of grapes, three-sixteenths of an inch wide at the top, and fully three-eighths of an inch long. I have taken care also of the sternum. The severe weather of the second week of December brought myriads of birds to our flat coast. My warren man supplied to our market six hundred dozens of Sky Larks, all of which passed under my eye, yet there was not the variation of a feather amongst them. Fieldfares and Redwings are abundant, while Song Thrushes are in hundreds—aye, thousands.—C. S Gregson (Rose Bank, Fletcher Grove, Liverpool).

Disappearance of Sky Larks.—Mr. Robert Service, of Maxwelltown, N. B., attributes the diminution in the number of Sky Larks in that district to Starlings destroying their eggs. Without wishing or being able to disprove the fact, I think (speaking from experience in the Midland Counties of England) that the excessive rains and floods of the last few years, at the nesting time of these birds, have more to do with their decrease than the Starlings. In the Dove and Trent meadows especially, numbers of nests of Sky Larks, Meadow Pipits, Yellow Wagtails, Reed Buntings, and Landrails have been destroyed during the last few years, the result being that in such districts these birds are not nearly so numerous as they formerly were.—H. G. Tomlinson (Burton-on-Trent).

Starlings destroying Larks' Eggs.—With your permission I should like to pass a few remarks on the notes which have appeared in the 'Zoologist,' respecting Starlings and Larks (Zool. 1878, pp. 427, 451). It is certainly new to me this asserted egg-destroying propensity on the part of the Starling, and from my own experience with these birds, no small one by the way, I am loth to believe it. Here, near Sheffield, Starlings breed in numbers, and throughout the year frequent the pastures in search of food; the Sky Lark, too, abounds, yet, so far as I can learn, both species live in peace together. The Starling, as is well known, is a gregarious bird, and seeks its food, as a rule, in flocks. Now these flocks, if closely observed, will seldom if ever be found on the breeding-grounds of the Sky Lark (which by the way is usually amongst the mowing grass, or in the corn-fields), but seek their sustenance on the pasture lands, so that a Lark's nest would rarely be met with. Sky Larks, though gregarious in the autumn and winter months, at the approach of spring separate into pairs and spread over the entire district, seldom more than one or two pairs inhabiting the same field, so that the chance of their nests being plundered by the Starlings would be reduced to a minimum. Again, admitting that Starlings are partial to their eggs, which I deny, are not the parent birds well able to protect their charge? The disappearance of the Sky Larks may probably be explained by a migratory movement in search of food, and when spring time once more arrives they will doubtless reappear in their usual numbers. Again, are not the eggs of all other ground birds exposed to the same danger,—the Pipits, the Wagtails, and the Chats,—and may not the Weasel, the Foumart, or even Field Mice be answerable for these robberies, if it can well be proved that such robberies take place? Do not, I pray, cast blame upon the poor Starling, for not a more harmless bird exists.—Charles Dixon (Heeley, near Sheffield).

Little Auk near Norwich.—A Little Auk was picked up yesterday (December 17th), in this parish, and brought to me alive.—J. H. Gurney, Jun. (Northrepps, Norwich).

Little Owl in Somersetshire.—A Little Owl was killed here in March, 1878, by a young man whose attention was directed to it by a number of small birds fluttering round the tree in which it was perched. The skin is now in my possession. It is a bad specimen, as the bird was, unfortunately, allowed to remain unskinned for a week after death.—G. W. Braikenridge (Clevedon, Somerset).

Honey Buzzard in the Isle of Wight.—Mr. F. Smith, taxidermist, of Newport, informs me that a handsome bird of this species, in perfect plumage, was shot on the 7th October by Mr. H. Jacobs, of Sandown, while in the act of robbing a wasps' nest. It had torn out the comb, and was preying on the larvæ, some of which were found in the gullet on dissection. This is, so far as I know, the first instance of its capture in the island, nor have I heard of its being even seen, though the Rev. C. Bury, who some years since published a list of the birds of the island, says that a Buzzard seen by some one (no ornithologist) "was probably the Honey Buzzard."—Henry Hadfield (High Cliff, Ventnor).

[Mr. A. G. More, in his "List of Birds" appended to Venables' 'Guide to the Isle of Wight,' observes (p. 428), "the Honey and Rough-legged Buzzards have each been once killed in the island."—Ed.]

Cole Tit nesting on the Ground.—Mr. Butterfield refers (Zool. 1878, p. 351) to a Cole Tit's nest in a hole in a bank as being in an "abnormal situation." I am inclined to think it is not an uncommon occurrence for this species to build in the ground, for I once found no less than three nests in an exactly similar situation in Scotland, *viz.* in a steep slope covered with pine trees; a wall of loose stones on the top of the slope containing a fourth nest. Several authors, among others Selby, Yarrell, Bechstein, Sharpe and Dresser, mention holes in the ground as being occasionally selected by the Cole Tit for nesting purposes. In the spring of the past year I found a nest of the Marsh Tit in the ground at the root of a tree in the New Forest. In this case trees full of holes abounded on every side.—J. Young (5, Denbigh Road, W.).

Birds in Hyde Park.—On March 26th last I noticed a Pied Wagtail, *Motacilla Yarrellii*, very busy after insects on the banks at the eastern end of the Serpentine. On April 5th, a female Wheatear was on the parade-ground opposite the Barracks; it appeared fatigued, having perhaps only just arrived. On June 16th I put up a Sky Lark near the Deputy Ranger's Lodge. On July 4th I saw the Cuckoo three times in the trees opposite Grosvenor Gate.—Edward Hamilton (Portugal Street, Grosvenor Square).

Kingfisher feeding on Newts.—At a small pond near here, a few weeks since, a gentleman killed one of these birds with a newt in its mouth. There are no fish in the pond or within three-quarters of a mile of it. Two other birds, he tells me, frequent the same pond, or large puddle, for whose lives I have interceded.—H. G. Tomlinson (Burton-on-Trent).

Death of Mr. George Dawson Rowley.—An estimable gentleman and an accomplished scholar and naturalist has passed away, in the person of the late Mr. George Dawson Rowley, whose death took place at Brighton on the 21st November. For some months past he had been in failing health, consequent upon a serious attack of pulmonary hæmorrhage, and his condition, while necessitating the greatest care of himself, had long been a source of much anxiety to his friends. Unable to take that active outdoor exercise, an indulgence in which is induced by an ardent taste for natural history, he had perforce to content himself at home with those resources which a well-stored mind has ever at command; and with a study of the many valuable objects of zoological and antiquarian interest which were to be found in his museum. From time to time the result of his researches found their way into print in the pages of 'The Zoologist,' the 'Field,' the 'Ibis,' and the 'Proceedings of the Zoological Society,' as well as in occasional pamphlets. His most important undertaking, however, was his 'Ornithological Miscellany,' a quarto periodical, printed at his own expense, and beautifully illustrated with coloured plates. In this work, which will form a lasting monument to his memory, many species of exceeding rarity and beauty are figured and described, either by himself or others of the many able naturalists who contributed to his pages. In addition, Mr. Rowley, at the time of his death, had made considerable progress with an important work upon the Garefowl or Great Auk, *Alca impennis*, of which bird, now believed to be extinct, he was the fortunate possessor of two skins and half a dozen eggs. Amongst the other manuscripts which he has left are "Bits and Fragments round a Saxon Saint," "Chronicles of the Rowleys," and notes for "A History of Huntingdonshire" (in which county, as well as in Rutlandshire, he possessed family property), besides several other unpublished essays of an historical and antiquarian character. Mr. Rowley was the eldest son of the late Mr. George William Rowley, of Priory Hill, Huntingdonshire, and was born on May 3rd, 1822. He married in 1849, Caroline Frances, only daughter of Archdeacon Lindsay, by whom he leaves an only son, George Fydell Rowley. He was educated at Eton and Trinity College, Cambridge, where he graduated M.A., and was a Fellow of the Linnean and Zoological Societies. He was deputy-lieutenant for Rutland, high sheriff for that county in 1870, and a justice of the peace for Huntingdonshire, Lincolnshire, and Rutland. His death will be regretted by a large circle of friends, as well as by his many brother naturalists, to whom he was ever ready to impart the results of his study and experience, and who are indebted to him, through his published writings, for much valuable information.

PROCEEDINGS OF SCIENTIFIC SOCIETIES.

Linnean Society of London.

November 21, 1878.—Dr. Gwyn Jeffreys, F.R.S., Vice-President, in the chair.

Messrs. Thomas Davidson, F.R.S. (Brighton), and Frederick James Faraday (Manchester), were elected Fellows of the Society.

Only one zoological paper was read, namely, "A Preliminary Report on the Mollusca dredged by the Staff of H.M.S. 'Challenger,'" by the Rev. R. Boog Watson, B.A. The mass of material received by the author was acknowledged to have been enormous. The mere arrangement of the labelled shells into groups was no ordinary task, remembering that every probable species and its locality had to be kept separate, and allied forms placed in contiguity for reference and subsequent comparison. Then followed the sifting of the dried dredgings, picking out and assorting the minute, almost microscopic shells, succeeded by the examination of those preserved in spirits; simultaneously authorities and types in museums and private collections had to be consulted—all which matters required a considerable expenditure of time and trouble. In this way over 2000 separate lots, including from 1200 to 1500 distinct species, have been already gone over and differentiated. This is irrespective of the Brachiopods, which Mr. Davidson has undertaken, and the Cephalopods, Pteropods and Nudibranchs, which will be worked out by other specialists. The author then proceeded to give a detailed account of the *Solenoconchia*, comprising three genera of Mollusca, viz. (1) *Dentalium*, (2) *Siphodentalium*, and (3) *Cadulus*. The general plan adopted by him is to give, after the name and synonym or other reference, the station, date, geographical position, depth taken from, and nature of bottom; then a description of the animal when available, description of the shell, differences in processes of growth, and general remarks and comparisons. The species of *Dentalium* are eighteen in all; of these eleven are new forms, as follows:—*D. ægeum*, *D. amphialum*, *D ceras*, *D. diarrhox*, *D. leptoceles*, *D. circumcinctum*, *D. acutissimum*, *D. compressum*, *D. didymum*, *D. yokohamense*, and *D. tornatum;* the remainder already known consist of *D. capillosum*, *D. entalis*, *D. longirostrum*, *D. subterfussum*, *D. dentalis*, *D. javanum*, and *D. ensiculus*. The *D. capillosum*, Jeffreys (*vide* 'Valorous' Exped. Report Roy. Soc.), was obtained by the 'Challenger' staff off the Azores, in globigerina ooze, at 1000 fathoms depth. A new variety of this species (var. *paucicostatum*, Watson), also obtained, has about forty instead of sixty-five longitudinal riblets. Of the *D. entalis*, Linn., three varieties were met with—viz. the var. *striolatum*, Stimps., *agile*, Sars, and var. *orthrum*, Watson. The first of these was dredged off Halifax, the second at Gomera, Canaries, and the third at Estubal, Fayal, the Azores, and Prince Edward Island. Their geographical distribution is doubly interesting when taken in connexion with antiquity of the species, Dr. Gwyn Jeffreys (following Herr Hörnes) carrying it back to the Miocene age. It appears from a study of *D. acutissimum* that, with reference to the form of the apex of the shell, separation of the *Dentalia* by the absence (in *Dentalium*) or presence (in *Entalis*) of the cleft process cannot be maintained. *D. subterfussum*, Jeff., was got in globigerina ooze at the Azores, in volcanic sand at the Canaries, and in mud at Pernambuco. The animal is unknown. Dr. Gwyn Jeffreys dredged it, in 1869, off the west coast of Ireland. *D. dentalis*, Linn., now living in the Mediterranean, South-West of France, and the Canaries, the 'Challenger' Expedition met with at Fayal, Azores, and Simon's Bay, Cape of Good Hope. The species of *Siphodentalium*, seven in number, are all new to Science; these are, *S. platamodes*, *S. tytthum*, *S. pusillum*, *S. tetraschistum*, *S. dichelum*, *S. prionotum*, and *S. eboracense.* Among the species of the genus *Cadulus* nine are new and one a variety: the list runs, *C. colubridens*, *C. vulpidens*, *C. rastridens*, *C. sauridens*, *C. gracilis*, Jeff., *C. simillimus*, *C. curtis*, and the var. *congruens*, *C. obesus*, *C. tumidosus*, Jeff., *C. exiguus*, and *C. ampullaceus*. Of the entire series of the three genera of *Solenoconchia*, as above mentioned, thirty-six species and four varieties are herewith recorded, whereof twenty may be regarded as hitherto unknown.

Three botanical papers were read:—"On Branch-tubers and Tendrils of *Vitis gongylodes*," by Mr. R. Irwin Lynch; "On the *Symplocaceæ*," by Mr. John Miers; and "On *Algæ* of Lake Nyassa," by Prof. G. Dickie.

December 5, 1878.—Prof. ALLMAN, F.R.S., President, in the chair.

The following gentlemen were elected Fellows of the Society:—G. F. Dowdeswell, Wimbledon; Arthur Hammond, Sheerness; Thomas Hanbury, Addiscombe, Croydon; Joseph Sidebotham, F.R.A.S., Bowdon, Cheshire; William Thomson, South Yarra, Melbourne; and Charles A. Wright, C.M.Z.S., Kew.

The first zoological paper read was "On some Coleoptera (collected by Charles Darwin) of Geographical Interest," by Frederick H. Waterhouse. The insects in question have lain undetermined for a great many years, and all prove new to science. *Phytosus Darwinii*, from the Falklands, has unusually long slender claws; *Choleva Falklandica* is elliptical shaped and strongly punctated; *Elmis brunnea* and *Anthicus Wollastonii*, from St. Helena, are noteworthy, for even the late Mr. Wollaston ('Coleopt. St. Helena') does not record either genus as existent there: *Scaphisome elongatum*, from Rio Janeiro, is the first species of the genus known to inhabit South America; and the *Prosthetops* (*P. capensis*) is a novel genus, with two ocelli, from South Africa.

Dr. Francis Day gave a summary of his third and concluding paper, "On the Geographical Distribution of Indian Freshwater Fishes," in this contribution dealing with the families *Scombresocidæ*, *Cyprinodontidæ*, *Cyprinidæ*, *Notopteridæ* and *Symbranchidæ*. Among the eighty-seven genera two only are African, thirty-two extend to the Malay Archipelago, and twelve are common to Africa and Malaya. Of three hundred and sixty-nine species two are African, twenty-seven Malayan, and two common to both regions. In short, the Indian freshwater fish affinities preponderate to those of the Indo-Chinese and Malayan subregions; thus supporting Mr. Alfred Wallace's opinions, and in opposition to the views held by Mr. Blanford, who gives greater weight to African relationships, at least so far as mammals are concerned. Dr. Day, moreover, believes that the Indian freshwater fishes owe their derivation to three subordinate separate faunas:—(1) That belonging to the Ghauts, Ceylon, the Himalayas, and the Malay Archipelago, wherein may be distinguished two fish races, a Palæarctic and a Malayan. (2) A fish fauna of the plains west of the Indus, with an African element in it. (3) That spread over the plains east of the Indus, and by far the largest, which appears to have a Burmese connection.

The abstract was read of a second contribution, "On the Mollusca of the 'Challenger' Expedition," by the Rev. R. Boog Watson. Of the four genera of *Trochidæ*, that of *Sequinzia* has two new species, and other information is given; *Basillissa* is a new genus, whose labial and basal sinus connect it with *Sequinzia*, while both genera present *Pleurotomaria* features; *Gaza*, also a new genus, is utterly distinct from anything known in the family, in which a reverted thickened lip is an entire anomaly; and the third new genus, *Bembix*, presents the novel feature of an epidermis.—J. Murie.

Zoological Society of London.

November 19, 1878.—A. Grote, Esq., Vice-President, in the chair.

Mr. Sclater exhibited and made remarks on an adult specimen, in full plumage, of the Black-throated Stonechat, *Saxicola stapazina*, which had been obtained in Lancashire, and had been sent for exhibition by Mr. R. Davenport. The species had not been previously recorded as occurring in the British Isles, and was an interesting addition to the list of "Accidental Visitors."

The Secretary read two letters he had received from Dr. A. B. Meyer and Mr. A. D. Bartlett in reference to the communication read at the last meeting from Mr. Everett respecting the supposed existence of the Anoa (*Anoa depressicornis*) in the Philippines.

Professor Owen read a memoir on the relative positions to their constrictors of the chambered shells of Cephalopods.

Sir Victor Brooke, Bart., read a paper on the classification of the *Cervidæ*, and gave a synoptical list of the existing species of this family. A second paper by Sir V. Brooke contained the description of a new species of Gazelle from Eastern Africa, which the author proposed to name *Gazella Walleri*, after its discoverer, Mr. Gerald Waller.

Professor A. H. Garrod read a paper on the anatomy of *Indicator major*, and showed that, as regards its soft parts, as in its Osteology, *Indicator* is not related to the Cuckoos, but to the Barbets and Toucans.

A communication was read from the Marquis of Tweeddale, containing the eleventh of his contributions to the Ornithology of the Philippines. The present paper gave an account of the collection made by Mr. A. H. Everett at Zamboanga, in the Island of Mindanao. Ninety-eight species were obtained in this locality by Mr. Everett, of which eleven were new to the Philippine Fauna, and six were new to Science.

Mr. E. R. Alston read some notes supplementary to his paper on the Squirrels of the Neotropical Region.

December 3, 1878.—ROBERT HUDSON, Esq., F.R.S., Vice-President, in the chair.

The Secretary read a report on the additions that had been made to the Society's Menagerie during the month of November, 1878, and called special attention to two examples of Horsfield's Tortoise, *Testudo Horsfieldi*, from Turkestan, presented by Dr. A. Strauch, C.M.Z.S., of the Imperial Museum of St. Petersburg, and a small Blue Maccaw, apparently referable to Spix's Maccaw, *Ara Spixi*, and new to the Society's Collection.

Mr. H. Seebohm exhibited a series of specimens of the Hooded and Carrion Crows, and made remarks on their intermediate forms and geographical distribution.

Colonel L. H. Loyd Irby exhibited and made remarks on the nests, eggs, and young of *Cypselus pallidus*, taken at Gibraltar.

Mr. Howard Saunders exhibited and made remarks on some eggs of Indian Laridæ, *Sterna bergii* and *Larus hemprichii*, which had been taken by Captain Butler, of H.M.'s 83rd Regiment, on the Mekran coast.

Dr. F. Day exhibited and made some remarks on some jaws of Indian Sharks belonging to the genera *Galeocerdo* and *Carcarias*.

The Secretary called attention to an error which had been made in reference to the collection of butterflies from Billiton, reported on by Messrs. Godman, Salvin, and Druce, in the last part of the Society's 'Proceedings.' The collection had been made and forwarded to England by Hr. J. G. F. Riedel, of Koepang.

Mr. Sclater communicated some further particulars respecting the occurrence in Lancashire of the specimen of the Black-throated Wheatear, *Saxicola stapazina*, exhibited at the last meeting of the Society.

Professor A. H. Garrod read a paper on the conformation of the thoracic extremity of the trachea, in the birds of the order Gallinæ.

A communication was read from Dr. A. Günther, F.R.S., containing the description of some reptiles from Midian, collected by Major Burton. Amongst these were two new Snakes proposed to be called *Echis decorata* and *Zamenis elegantissima*.

Mr. H. Seebohm pointed out the character of a new *Sylvia* from Abyssinia, proposed to be called *Sylvia Blanfordi*, after Mr. Blanford, by whom it was obtained during the Abyssinian Expedition. Mr. Seebohm also read notes on the identity of the birds which had been named *Horornis fortipes*, *Neornis assimilis*, *Horeites robustipes*, *H. brunneus*, and *H. pallidus*, and proposed to reduce them to one species under the name *Cettia fortipes*.

Mr. Martin Jacoby read descriptions of some new species of Phytophagous Coleoptera, from Central and South America.—P. L. Sclater, *Secretary*.

Entomological Society of London.

November 6, 1878.—H. W. Bates, Esq., F.L.S., F.Z.S., President, in the chair.

Mr. F. Smith called attention to a passage in Mr. M'Lachlan's "Report on the Linnean Collection," read at the last meeting (*vide* Ent. Mo. Mag. for November, p. 140), wherein the author states, as the result of his examination of the collection, that "there were no traces of mites, *Psoci*, or *Anthreni*." Mr. Smith was of opinion that this statement might lead to the belief that he had affirmed that the collection was actually attacked by mites, *Psoci*, and *Anthreni*, and as this was not the case he mentioned the subject in order to remove any erroneous impression.

Mr. C. O. Waterhouse exhibited a specimen of *Chauliognathus excellens*, a new beetle from the United States of Columbia.

Mr. H. T. Stainton exhibited a new horn-feeding *Tinea* reared from horns from Singapore, *T. orientalis*, allied to the well-known large species from South Africa, of which the larvæ fed in the horns of living buffaloes and antelopes, and which had been described by Zeller under the name of *Vastella*, and subsequently by himself under the name *Gigantella*, both names referring to the extraordinary size of the insect in the genus *Tinea*. The specimens now exhibited were reared by Mr. Simmons, of Poplar, who found them in his greenhouse, and was quite at a loss to account for their appearance till Mr. Stainton suggested they were horn-feeders, when he remembered a piece of horn placed on a shelf and forgotten, but which when examined showed evident traces of having been eaten, and from which pupa-skins had been obtained.

The Rev. H. S. Gorham exhibited the following rare beetles, taken in the neighbourhood of Horsham, Sussex:—*Platypus cylindrus*, Fab., *Lathrobium pallidum*, Nordmann, *Achenium humile*, Nicolai, and *Cryphalus abietis*, Ratzeburg. [Coloured figures of the three first named will be found in Janson's 'British Beetles,' figs. 99, 112, 113.]

Mr. H. Goss exhibited male and female specimens of a rare dragon-fly, *Cordulia Curtisi*, taken at Popesdown, Christchurch, Hampshire. Mr. M'Lachlan made some remarks on the geographical distribution of this species. (See also Ent. Mo. Mag. for Sept. 1878, p. 92.)

Mr. Meldola exhibited a male specimen of a moth from Jamaica, belonging to the genus *Erebus*, and which was remarkable on account of its possessing large scent-fans or tufts on the hind legs. Although the function of these tufts had only recently been made known through the researches of Fritz Müller, this species had been named *E. odorus* (*Phalæna-Bombyx odora*) by Linnæus. (See also Sloan's 'Jamaica,' vol. ii., p. 216).

Mr. J. Wood-Mason exhibited specimens in alcohol of *Gongylus trachelophyllus*, Burm. (male and female), and of *G. gongylodes*, Linn. Saussure was of opinion that the former species was a variety of the latter, but Mr. Wood-Mason, after examining numerous specimens of both, had found good characteristic differences, and concluded that they were specifically distinct—a view which was corroborated by the difference in the colour of the under side of the prothoracic expansion, a distinction which he had long suspected, but of which he had only recently obtained good evidence. Knowing that Sir Walter Elliot, during his long residence in India, had superintended the execution, by native artists, of a multitude of coloured drawings of animals belonging to all groups, and thinking it probable that there might be amongst these some coloured sketches of *Gongylus*, he applied to him for the loan of any drawings of Orthoptera he might still have in his possession, a request to which Sir Walter Elliot, with his usual generosity, at once acceded. Amongst these Mr. Wood-Mason had found a coloured drawing of the under surface of *Gongylus gongylodes*, which conclusively proved that the insect is coloured so as to resemble a flower with a *white* corolla, thus differing remarkably from the other species, in which the prothoracic shield is of a pale bluish violet inclining to mauve, and acquiring a reddish tinge towards the margins. Both species have the same black-brown transverse prosternal blotch. *G. gongylodes* was restricted in its distribution to the neighbourhood of Bangalore in Mysore and Ceylon: one specimen, however, is in the National Collection from the Dharwar district South Mahratta country, obtained many years ago by Sir Walter Elliot himself. *G. trachelophyllus*, on the other hand, was only known to Mr. Wood-Mason from Midnapur, from the base of the Karakpur Hills near Monghyr. In 1871 he had received a specimen from Pegu, which was obtained by the late Mr. S. Kurz during a botanical tour in that province. This specimen differed but slightly from the typical form, the colour of the prothoracic shield being a bright blue-violet, and its resemblance to a flower deceived for the moment the practised eyes of Mr. Kurz. Mr. Wood-Mason hoped before long to be able to give coloured figures of these anthomimetic *Mantidæ*.

Mr. W. L. Distant stated that Waterton recorded in his 'Essays on Natural History,' the resemblance of the rattle of the rattlesnake to an orthopterous insect, and suggested that this, by deceiving and attracting birds, might be of service to the reptile in the same manner that the floral resemblance of *Gongylus* serves to secure for these insects a supply of food.

Mrs. Randolph Clay (who was present as a visitor) exhibited a living specimen of *Zopherus Brêmei*, from Yucatan, Mexico, which had been worn by her for many months as an ornament, during which time the insect was stated to have taken no food. (See also 'The Queen,' 24th August, 1878.)

Sir Sidney Saunders exhibited specimens of *Blastophaga Psenes*, Linn., male and female, employed in the process of caprification, received from M. Jules Lichtenstein, of Montpellier. Also specimens of *Sycophaga cassipes*, Westw., from the Sycamore figs of Egypt, together with certain apterous associates corresponding with *Apocrypta* of Coquerel (but specifically distinct) recently found in the same figs.

The Secretary read a Report from Her Majesty's Consul at Taganrog, which had been sent to the Foreign Office and transmitted to the Society through the Board of Trade. The Report related to the destruction of the corn crops by *Anisoplia austriaca* in the neighbourhood of Myriapol, and in various districts in Berdiansk, Kharoff, Poltana, Ekaterinoslaff, Kherson and Bessarabia. *Cleonus punctiventris* and *Anisoplia crucifera* were also reported to be spreading in the provinces of Kiero and Podolia. The total damage done by these destructive Coleoptera is estimated at two million roubles. A Sub-committee was appointed to draw up some observations on these beetles for the use of Her Majesty's Consul.

Miss E. A. Ormerod communicated a paper "On the Prevention of Insect-injury by the use of Phenol Preparations," and exhibited drawings and specimens showing the destruction of carrot crops by *Psila rosæ*.

Sir Sidney Saunders communicated a paper "On the Habits and Affinities of *Sycophaga* and *Apocrypta* from the Sycamore Figs of Egypt."

Mr. C. O. Waterhouse communicated "Descriptions of new *Telephoridæ* from Central and South America."

Mr. W. L. Distant communicated "Descriptions of new Species of Hemiptera-Homoptera."

Part III. of the 'Transactions' for 1878 was on the table.—R. Meldola, *Hon. Secretary.*